

University of Groningen

Learning in clinical practice

Raat, Janet; Kuks, Jan; Cohen-Schotanus, Janke

Published in:
Medical Teacher

DOI:
[10.3109/0142159X.2010.497820](https://doi.org/10.3109/0142159X.2010.497820)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2010

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Raat, J., Kuks, J., & Cohen-Schotanus, J. (2010). Learning in clinical practice: Stimulating and discouraging response to social comparison. *Medical Teacher*, 32(11), 899-904.
<https://doi.org/10.3109/0142159X.2010.497820>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Learning in clinical practice: Stimulating and discouraging response to social comparison

JANET RAAT, JAN KUKS & JANKE COHEN-SCHOTANUS

University of Groningen and University Medical Center Groningen, The Netherlands

Abstract

Background: Social comparison theory is relevant for learning in general. In a clinical context, we examined four hypotheses concerning: preferred other to compare with, preferred direction of comparison, response to social comparison and influence of personal social comparison orientation (SCO).

Aim: To investigate the relevance of social comparison for clinical workplace learning.

Method: Students ($n = 437$) from nine different hospitals completed two questionnaires measuring their SCO and the direction of and response to their comparisons. *t*-tests were used to analyse the data.

Results: Students substantially did compare. They preferred to compare with peer students more than with residents or staff, and with peers doing better more than with peers doing worse. Their response to social comparison was more often stimulating for learning than discouraging. Students high in SCO reported a stronger stimulating *and* discouraging response to their comparisons than students low in SCO.

Conclusion: Social comparison does play a role in clinical workplace learning. The mainly stimulating response to social comparison indicates a positive learning influence. The preferred comparison with peers emphasizes the role of peers in the learning process. Further research should focus on student comparison behaviour and on situations that strengthen the positive effects of social comparison and reduce the negative or obstructing ones.

Introduction

Learning in clinical practice is an essential part of medical education. Students have to learn, apply and develop their competencies in a real-life clinical context. In medical education research, different social-psychological theories – such as social learning theory, situated learning theory and the ideas of cognitive apprenticeship – are used to frame this comprehensive learning process (Bleakley 2002; Dolmans et al. 2004; Dorman et al. 2007). In addition to these concepts, we will put forward social comparison theory as a potential part of this theoretical framework. Although social comparison theory is not developed as a specific learning theory, it does affect the learning process and is confirmed to be relevant for learning in general (Blanton et al. 1999; Huguet et al. 2001; Buunk et al. 2005a). In this study, we wanted to investigate its relevance for learning in clinical practice.

Social comparison theory has its origin in Festinger's: 'A theory of social comparison processes' (1954). More recently, social comparison has been defined by Wood as 'the process of thinking about information of one or more other people in relation to the self' (1996). Social comparison could be seen as a strategy to cope with all kinds of social situations, used by almost all people to make sense of themselves and their social surrounding (Buunk & Gibbons 2006). In clinical practice, the transition from medical student to medical doctor is described as a critical period for learning. In their first confrontations with real patients,

Practice points

- Social comparison could provide students in clinical practice with useful information about their own current position, capabilities, opportunities and threats.
- Students in clinical practice frequently do compare, preferably with similar attributed others.
- Like other people, students do vary in their orientation towards social comparison and use different comparison strategies.
- Social comparison emphasizes the role of peers in workplace learning and supports peer-to-peer learning.

demanding staff and institutional rules students often report difficulties with the application of their knowledge and feelings of insecurity and embarrassment (Prince et al. 2000; Radcliffe & Lester 2003). Under these circumstances it is likely to suppose that they will get engaged in social comparison, the use of others to make sense of themselves in their new social or professional surrounding. The comparison of their own performance with the performance of peers, residents, staff and other healthcare workers, could help them to get an impression of their own capabilities, limitations, opportunities and threats. These perceptions may conceivably influence,

Correspondence: J. Raat, Institute for Medical Education, University Medical Center Groningen, A. Deusinglaan 1, 9713AV Groningen, The Netherlands. Tel: 31 503636758; fax: 31 503637390; email: a.n.raat@med.umcg.nl

stimulate or discourage their learning and professional development.

To verify this apparent relevance of social comparison for learning in clinical practice, we will discuss some prominent parts of social comparison theory, proven to be relevant for learning in general. We first investigated the so-called 'social comparison orientation' (SCO) and questioned this orientation for students in clinical practice.

Social comparison orientation (SCO)

Almost everybody is – from time to time – involved in a comparison of oneself with others. Despite this omnipresence, people vary in the extent to which and the frequency with which they compare themselves and their performances (Hemphill & Lehman 1991; Diener & Fujita 1997). Gibbons and Buunk developed a scale to measure these individual differences which were labelled as 'SCO' (1999). In general, people high in SCO do compare themselves more frequently *and* are more affected by their comparisons (Buunk et al. 2001, 2005b). Just like other people, students may vary in SCO. Consequently, our first research question concerned the SCO of students in clinical practice: how much do they compare themselves and their performances and to which extent?

Subsequently, we investigated four hypotheses all based on social comparison theory and related to learning in clinical practice. They concerned: the preferred other to compare with, the preferred direction of comparison, the response to social comparison and the influence of individual SCO.

Preferred other to compare with

Students in clinical practice are surrounded by various other health care workers to compare themselves with. Festinger (1954), already theorized the most preferred comparison other as someone close to one's own ability or opinion. He suggested a similar other to compare with as most informative to evaluate one's own position or abilities. In a reformulation of classic social comparison theory, similarity was redefined in terms of related attributes (Goethals & Darley 1977). Rather than performance outcomes, these attributes are characteristics that contribute to performance, such as age or experience. For example, a student who wants to evaluate (or predict) his first patient history might prefer to compare with an unskilled peer student who is still struggling with time and structure. A comparison with a resident or excellent skilled staff member might be considered as less informative. To explore this preference for peers to compare with, we hypothesized:

- H1* Students in clinical practice prefer to compare themselves with peer students more than with residents or staff.

Preferred direction of comparison

Due to different situations, students may seek comparison with others performing better (upward comparison) and with others performing worse (downward comparison) as people can alter their comparison strategies to serve different purposes.

They may prefer upward comparison if they are motivated by self-improvement, whereas they may choose downward comparison if they are motivated by self-enhancement, the desire to feel or do better than others (Taylor & Lobel 1989). In the context of learning, upward comparison is preferred because students are predominantly interested in doing better (Blanton et al. 1999; Huguet et al. 2001). For example, in a study among high school students the most frequently mentioned goal of students' upward comparison was the hope to receive future grades similar to those of students currently performing better (Buunk et al. 2005a). Students in clinical practice are in a learning situation as well. Therefore, we expect them to be mostly motivated by self-improvement and, consequently, do prefer upward comparison. To provide empirical evidence for this expectation, we hypothesized:

- H2* Students in clinical practice prefer to compare their clinical performance with peer students performing better more than with peers performing worse.

Response to social comparison

Social comparison may lead to positive and negative responses, both after comparison up and down. During the development of social comparison theory, it was acknowledged that these responses are influenced by identification and contrast (Buunk & Ybema 1997).

People who experience *identification* with the compared other may respond positive to upward comparison and negative to downward comparison. For example, students may feel stimulated to reach the same level as better performing peers if they think they could become like them, whereas students may feel discouraged if they think their own situation might worsen like the situation of the worse off other did. On the contrary, people who evaluate themselves in *contrast* to the compared other may respond positively to downward comparison and negative to upward comparison. For example, students may feel stimulated to outperform peers doing worse if they evaluate themselves as more competent, whereas students may feel discouraged if they evaluate themselves as inferior to better performing peers. In learning situations, both the tendency to identify with others performing better as the tendency to evaluate the self in contrast to others performing worse is linked to improved performance (Blanton et al. 1999). Therefore, we expected students – mainly interested in doing better – to benefit from both comparison strategies, and hypothesized:

- H3* In response to social comparison, students feel more stimulated than discouraged after both upward and downward comparisons.

Influence of individual SCO

People high in SCO are more inclined to compare themselves, regardless of direction, and are also more affected by their comparisons (Buunk & Gibbons 2006). Therefore, the

stimulating and discouraging response to social comparison should be most evident among students who frequently compare. To put it differently, the relevance of social comparison theory for learning in clinical practice should be most obvious among students high in SCO. Consequently, we expected to find a stronger stimulating and discouraging response to the comparison process among students high in SCO.

- H4* Stimulating and discouraging response to social comparison is stronger among students high in SCO after both upward and downward comparisons.

Methods

Context and participants

This study was conducted in the Netherlands at the University of Groningen. The 6-year medical curriculum of this university is problem-based and patient-centred. During the last 2 years, students participate in clinical practice. They rotate in a variety of disciplines in the University Medical Center Groningen or in one of its eight affiliated hospital. In this study, participants ($n = 437$) were all students in the last 2 years of the curriculum, participating in one of the hospitals mentioned above.

Instruments

We used two questionnaires. The first one, the Iowa–Netherlands Comparison Orientation Measure, INCOM, was used to measure the SCO of the students. The INCOM is developed by Gibbons and Buunk (1999) and consists of 11 items such as ‘I always like to know what others in a similar situation would do’ and ‘I often compare myself with others with respect to what I have accomplished’. All questions are Likert-type (1 = strongly disagree, 5 = strongly agree). The second questionnaire, also containing 11 Likert-type questions, concerns the preferred other to compare with, the preferred direction of comparison and the response to social comparison. For the preferred other to compare with, we asked three similar questions, each of them ending differently: ‘I like to know how I am performing in clinical practice compared to peer students’, ‘...to residents’ and ‘...to staff’. For the direction of comparison we used two questions from the comparison subscale of the INCOM, developed to measure upward and downward comparisons (Gibbons & Buunk 1999): ‘When I wonder how good I am at something, I compare myself with others who are better at it than I am’, for upward comparison, and ‘When I wonder how good I am

at something, I compare myself with others who are worse at it than I am’, for downward comparison. For the response to social comparison, we adopted four questions used in a study among nurses (Buunk et al. 2005b). Instead of the words ‘good’ and ‘bad’ in questions like: ‘How often do you feel good when you see others perform worse than you do’, we used the words ‘stimulated’ and ‘discouraged’.

Analysis

Differences between the mean item scores of all respondents, concerning preferred comparison other, preferred direction of comparison and response to social comparison (hypotheses 1–3) were tested with a paired *t*-test. Differences between the scores of respondents high and low in SCO, highest and lowest quartile (hypothesis 4) were tested with an unpaired *t*-test.

Results

Both questionnaires were completed by 437 students (67%), 290 females (66%) and 140 males (32%), 7 students did not fill in their gender. This gender distribution is representative for the population of undergraduate clinical students in the Netherlands.

The mean SCO of our participants was 3.43 ($SE = 0.58$). Female students had a higher mean SCO than male students ($t = 3.62$, $df = 428$, $p < 0.001$).

H1 Students preferred to compare themselves with peer students ($M = 3.64$, $SD = 0.80$) more than with residents ($M = 3.40$, $SD = 1.05$), ($t(436) = 5.4$, $p < 0.001$) or with staff ($M = 2.84$, $SD = 0.57$), ($t(436) = 14.4$, $p < 0.001$).

H2 Students preferred to compare themselves with peers performing better, upward comparison ($M = 2.98$, $SD = 0.80$), more than with peers performing worse, downward comparison ($M = 2.43$, $SD = 0.84$), ($t(436) = 11.2$, $p < 0.001$).

H3 Students reported more often a stimulating response to social comparison than a discouraging one, after comparison with peers performing better ($p < 0.001$) as well as after

Table 1. Students’ stimulating and discouraging responses to upward and downward comparisons, $n = 437$.

Direction	Response	<i>M</i> (<i>SD</i>)	<i>t</i>	<i>df</i>	<i>p</i>
Upward comparison	Stimulating	3.61 (0.86)	18.98	434	<0.001
	Discouraging	2.33 (0.89)			
Downward comparison	Stimulating	2.80 (0.99)	16.42	431	<0.001
	Discouraging	1.87 (0.78)			

Table 2. Influence of students’ SCO (the tendency to compare) to directions of and response to comparisons, lowest ($n = 98$) and highest ($n = 124$) quartile.

Direction	Response	SCO < 25%, <i>M</i> (<i>SD</i>)	SCO > 75%, <i>M</i> (<i>SD</i>)	<i>t</i>	<i>df</i>	<i>p</i>
Upward comparison	Stimulating	3.54 (0.95)	3.67 (0.84)	−1.09	221	=0.277
	Discouraging	1.99 (0.74)	2.74 (0.96)	−6.57	220	<0.001
Downward comparison	Stimulating	2.45 (1.01)	3.06 (0.90)	−4.73	220	<0.001
	Discouraging	1.72 (0.76)	2.04 (0.78)	−3.04	220	<0.005

comparison with peers performing worse ($p < 0.001$). The results are shown in Table 1.

H4 As shown in Table 2, the reported responses to social comparison were stronger among students high in SCO, except for the stimulating responses to upward comparison, which did not differ for students high and low in SCO ($p = 0.277$). Students high in SCO reported a stronger discouraging response to upward comparison than students low in SCO ($p < 0.001$). They also reported a stronger stimulating ($p < 0.001$) and discouraging ($p < 0.005$) response to downward comparison.

Discussion

As was to be expected, undergraduate students in clinical practice frequently compared themselves with others. Their mean SCO is consistent with the reported mean SCO of other students as is the modest but significantly higher SCO for females (Gibbons & Buunk 1999). Students in clinical practice preferred to compare themselves with peer students (hypothesis 1). They also compared themselves more upward, with peers doing better, than downward, with peers doing worse (hypothesis 2) and their responses to social comparison were more often stimulating for learning than discouraging (hypothesis 3). Stimulating and discouraging responses were most eminent among students high in SCO, except for the stimulating responses to upward comparison which were the same for students high and students low in SCO (hypothesis 4).

Students preferred to compare themselves with peer students more than with residents and staff. This finding confirms the theory that related attributed others are considered to be most informative for the evaluation of one's own current position and abilities (Goethals & Darley 1977). A comparison with peers, similar advantaged or disadvantaged on related attributes such as level of experience and hierarchical position, could provide students with useful information of their own abilities in context. This apparent preference for peers to compare with emphasizes the distinctive role of peers in the comprehensive process of workplace learning and offers opportunities to connect social comparison theory with peer group assessment and peer-to-peer learning.

Workplace learning is grounded in different social-psychological theories such as situated learning theory (Lave & Wenger 1991), the ideas of communities of practice (Wenger 1998), and cognitive apprenticeship (Brown et al. 1989). In these theories, students are assumed to learn and develop their competences in the domain-specific way of thinking and acting from medical experts, such as staff and residents. Role modelling with these experts is acknowledged as one of the most powerful forces in the transmission of technical skills, relevant knowledge, attitudes and values (Elzubeir & Rizk 2001). This process of role modelling must be distinguished from the process of social comparison, in which people use others to make sense of themselves in their social surrounding (Buunk & Gibbons 2006). Social comparison may provide students with useful information about their current selves, present opportunities and threats. In addition to the essential role of medical experts in the process of role

modelling, peer students seem to be in a key position in the process of social comparison.

The reported preference for peers to compare with, does not put residents or staff aside the comparing process. Students did report comparisons with residents and staff as well, especially with residents. Their preference to compare with residents above staff strengthens the assumption that related attributed others are considered to be most informative to compare with. Further research is needed to determine in which clinical situations students will seek for residents and staff to compare themselves with and how this preference may change over time.

Students preferred upward comparison, with peers performing better. This favoured comparison strategy is linked to increased learning outcomes, especially among students who *identify* themselves with better performing peers (Blanton et al. 1999). There are a number of reasons why upward comparison can result in improved performances. First, it may provide useful information about how to improve. Second, it may increase the motivation to improve as it could endow a sense of one's own potential and raise self confidence. Finally, it may lead to higher personal standards for evaluating one's own success. To encourage this preferred comparison strategy, students in clinical practice need to have enough encounters with better performing peers to be able to compare themselves upward. These encounters could be structured, for instance by peer-to-peer learning and interactive group learning.

Students reported to compare themselves downward as well, with peers performing worse. This finding is not necessarily problematic as it is also linked to improved performance (Blanton et al. 1999). An explanation of this downward strategy leads back to its underlying motive: a comparison with worse performing others is mostly motivated by self-enhancement, the desire to feel or do better (Taylor & Lobel 1989). Downward comparison can become a positive learning experience for students who evaluate themselves *in contrast* to peers doing worse. It could be attractive for students who feel insecure as this may raise their self-confidence and stimulate the learning of students motivated by the desire to outperform others. Downward comparison may inform students about unfavourable situations and ineffective strategies. We determined that students did not just benefit from upward comparison, but from downward comparison as well, since the responses to the latter were also more stimulating for learning than discouraging.

On the other hand, we should take notice of the reported discouraging responses to social comparison after comparison with both peers performing better and peers performing worse. Upward comparison could emphasize a student's own inferior position, especially when the compared performance is evaluated in contrast to one's own capacities and considered too far out of reach. Downward comparison might show students – who identify themselves with worse performing peers – how their own situation might deteriorate, which could even lead to lowering personal standards (Lockwood 2002). Both kinds of discouraging experiences could hamper the learning process. A better understanding of this part of the

comparison process might offer opportunities to reduce or prevent such effects.

Finally, the positive and often reported stimulating response to upward comparison did not differ for students high and students low in SCO. This partial outcome of our last hypothesis was unpredicted, as students high in SCO were assumed to be more affected by the comparison process. Consequently, we expected them to report more stimulating responses to upward comparison than students low in SCO. In a study with fictitious upward interviews, students high and students low in SCO did not differ in their responses either (Groothof 2004). Further research is recommended to examine the relation between differences in SCO and similar responses to upward comparison.

A strength of this study is the participation of a relatively large and diverse group of students, which increased the generalizability of the findings. Students participated in different disciplines within nine different hospitals, both university and affiliated. Their responses provided unique empirical evidence of students' comparison behaviour in clinical practice. The study was embedded in social comparison literature and all findings were related to previous social comparison research which improved the reliability of our results.

Our findings are indicative for a positive influence of social comparison on clinical performance, especially the preferred upward comparison strategy and mainly stimulating responses to social comparison. A limitation of this study is that we did not yet examine the actual influence itself. However, previous research among students, in general, showed a significant positive effect on learning outcomes (Huguet et al. 2001). Social comparison was mentioned as a determinant of performance level. Students improved their grades if they identified themselves with peers doing better *and* if they viewed themselves in contrast to peers doing worse (Blanton et al. 1999).

The study provided empirical evidence of the relevance of social comparison theory for clinical workplace learning. Students frequently compare themselves and these comparisons influence their learning. A better understanding of students' comparison behaviour, their use of others to make sense of themselves in their new social or professional surrounding, might be relevant to contemporary social learning theories. Further research is needed to investigate conceptual possibilities and translate social comparison theory into the field of clinical workplace learning.

Future studies should focus on more in-depth analysis of student comparison behaviour. It should explore and specify circumstances and situations in which students do benefit from their comparisons with better *and* worse performing peers. Furthermore, it should examine the influence of social comparison on clinical performance and professional development.

Acknowledgement

We would like to thank Tineke Bouwkamp-Timmer for her constructive comments on this manuscript.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Notes on Contributors

A.N. JANET RAAT, MSc, is a medical sociologist and Coordinator Clinical Education, Institute for Medical Education, University of Groningen and University Medical Center Groningen, The Netherlands.

JAN B.M. KUKS, MD, PhD, is a professor of Medical Education and curriculum coördinator, Institute for Medical Education, University of Groningen and University Medical Center Groningen, The Netherlands.

JANKE COHEN-SCHOTANUS, PhD, is a professor of Research in Medical Education and head of the Center for Research and Innovation in Medical Education, University of Groningen and University Medical Center Groningen, The Netherlands.

References

- Blanton H, Buunk BP, Gibbons FX. 1999. When better-than-others compare upward: Choice of comparison and comparative evaluation as independent predictors of academic performance. *J Pers Soc Psychol* 76:420–430.
- Bleakley A. 2002. Pre-registration house officers and ward-based learning: A 'new apprenticeship' model. *Med Educ* 36:9–15.
- Brown JS, Collins A, Duguid S. 1989. Situated cognition and the culture of learning. *Educ Researcher* 18:32–42.
- Buunk AP, Gibbons FX. 2006. Social comparison orientation: A new perspective on those who do and those who don't compare with others. In: Guimond S, editor. *Social comparison and social psychology: Understanding cognition, intergroup relations and culture*. Cambridge: Cambridge University Press. pp 15–32.
- Buunk BP, Kuyper H, van der Zee YG. 2005a. Affective response to social comparison in the classroom. *Basic Appl Soc Psych* 27:229–237.
- Buunk BP, Ybema JF. 1997. Social comparison and occupational stress: The identification-contrast model. In: Buunk BP, Gibbons FX, editors. *Health coping and well-being: Perspectives from social comparison theory*. Mahwah, NJ: Erlbaum Associates. pp 359–388.
- Buunk BP, Ybema JF, Gibbons FX, Ipenburg M. 2001. The affective consequences of social comparison as related to professional burnout and social comparison orientation. *Eur J Soc Psychol* 31:337–351.
- Buunk BP, Zurriaga R, Peiró JM, Nauta A, Gonsalvez I. 2005b. Social comparison at work as related to a cooperative social climate and to individual differences in social comparison orientation. *Appl Psychol* 54:61–80.
- Diener E, Fujita F. 1997. Social comparisons and subjective wellbeing. In: Buunk BP, Gibbons FX, editors. *Health coping and well-being: Perspectives from social comparison theory*. Mahwah, NJ: Erlbaum Associates. pp 329–358.
- Dolmans DHJM, Wolfhagen HAP, Gerver WJ, de Grave W, Scherpbier AJJA. 2004. Providing physicians with feedback on how they supervise students during patient contacts. *Med Teach* 25:409–414.
- Dornan T, Boshuizen H, King N, Scherpbier A. 2007. Experience-based learning: A model linking the processes and outcomes of medical students' workplace learning. *Med Educ* 41:84–91.
- Elzubeir MA, Rizk DEE. 2001. Identifying characteristics that students, interns and residents look for in their role models. *Med Educ* 35:272–277.
- Festinger L. 1954. A theory of social comparison processes. *Hum Relat* 7:117–140.
- Goethals RL, Darley JM. 1977. Social comparison theory: An attributional approach. In: Suls J, Miller RL, editors. *Social comparison processes: Theoretical and empirical perspectives*. Washington DC: Hemisphere. pp 259–278.
- Gibbons FX, Buunk AP. 1999. Individual differences in social comparison: Development of a scale of social comparison orientation. *J Pers Soc Psychol* 76:129–142.
- Groothof HAK. 2004. The influence of individual differences in social comparison orientation: On reactions to upward and downward comparison. In: Groothof HAK, editor. *When others are doing better*

- or worse: Responses from the heart and the head. Groningen: Dissertation University of Groningen. pp 64–79.
- Hemphill KJ, Lehman DR. 1991. Social comparisons and their affective consequences: The importance of comparison dimension and individual difference variables. *J Soc Clin Psychol* 10:372–394.
- Huguet P, Dumas F, Monteil JM. 2001. Social comparison choices in the classroom: Further evidence for students' upward comparison tendency and its beneficial impact on performance. *Eur J Soc Psychol* 31:557–578.
- Lave J, Wenger E. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Lockwood P. 2002. Could it happen to you? Predicting the impact of downward comparisons on the self. *J Pers Soc Psychol* 82:343–358.
- Prince KJAH, van de Wiel MWJ, Scherpbier AJJA, van der Vleuten CPM, Boshuizen HPA. 2000. A qualitative analysis of the transition from theory to practice in undergraduate training in a PBL medical school. *Adv Health Sci Educ* 5:105–116.
- Radcliffe C, Lester H. 2003. Perceived stress during undergraduate medical training: A qualitative study. *Med Educ* 37:32–38.
- Taylor SE, Lobel M. 1989. Social comparison activity under threat: Downward evaluation and upward contacts. *Psychol Rev* 96:569–575.
- Wenger E. 1998. *Communities of practice: Learning, meaning and identity*. Cambridge, UK: Cambridge University Press.
- Wood JV. 1996. What is social comparison and how should we study it? *Pers Soc Psychol Bull* 22:520–537.